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4. Title of the invention	Device and Method		
5. Name of your agent <i>(if you have one)</i>	Marina Hall Reckitt Benckiser plc Group Patents Department Dansom Lane HULL HU8 7DS UNITED KINGDOM Patents ADP number <i>(if you know it)</i> 07799521001		
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Date

John C McKnight
John C McKnight

6 June 2003

12. Name and daytime telephone number of Person to contact in the United Kingdom

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Device and Method

This invention relates to a device for removing a composition from the skin, and to an associated method.
5 The invention relates in particular, but not exclusively, to a device for use in a depilatory method.

Hair removing compositions are widely available. The user applies these to their skin, leaves them for a pre-
10 determined interval to allow them to work, and then removes them from the skin, usually using a article which is provided. This is typically a cloth, sponge or a elastically flexible plastics sheet. Such a plastics sheet may be formed with a curvature so as to facilitate
15 removal of the composition and the hair entrained within it. However some consumers find such a device messy or difficult to use. Many hold such devices close to their leading edge which contacts the skin and consequently it is difficult for them to keep their hand clear of the
20 composition and hair being removed. Furthermore it can be difficult to reach some areas, such as parts of the backs of legs, using such devices.

We have now devised a different type of device to remove
25 compositions from the skin, including depilatory compositions, efficiently and cleanly.

In accordance with a first aspect of the present invention there is provided a device for removing a composition from
30 the skin, the device comprising: a non-shaving head which in use is moved over the skin to effect removal of the composition; a handle; and a joint between the head and

the handle, permitting the head to articulate about the handle.

5 In this specification when we use terms such as "downward" and "underside" we are referring to the side of the device which faces the skin, in use. Terms such as "upwardly" and "upper" denote the opposite direction. The head is regarded as the front of the device and the tip of the handle as the rear of the device.

10

A preferred device is designed for use in hair removal; to be drawn over skin to which a depilatory composition has been applied, in order to remove, after any required interval, hair and the depilatory composition. Whilst the
15 device may effect the breaking of some hairs which have been weakened by the depilatory composition it cannot be used as a shaving device. Accordingly it does not have a cutting blade.

20 The head suitably has a leading edge which, in use, makes contact with the skin. Preferably this is a straight edge. The leading edge is preferably generally parallel to but maximally displaced from the joint. By parallel to the joint we allude to an axis about which articulation
25 takes place.

Preferably the leading edge is angular but not sharp, to the extent that it might effect cutting, either of skin or hair. Thus, by eye when viewed in magnification it can be
30 seen to be radiused, in preferred embodiments. Preferably the radius of such a leading edge is at least 0.25mm, more preferably at least 0.5mm, and most preferably at least 0.65mm. Preferably the radius of such a leading edge is

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up to 1.5mm, more preferably up to 1mm, and most preferably up to 0.85mm.

5 Preferably the head is firmly carried by the handle; in the absence of a force or when merely touched there is no tendency for it to be deflected. In use when bearing upon the skin it may articulate against a resistance force.

10 In use, the user holds the handle and places the leading edge of the head on the skin. Typically the arrangement is such that the head, and the device as a whole, make an acute angle to the skin when the device is in position to be drawn across the skin, in the rearwards direction. The force applied by the head to the skin is provided by the
15 user to the handle, and this is transmitted by the joint, to the head. Preferably the head may articulate upwardly, so that the usage is still comfortable, and not mechanically aggressive to the skin. The extent of articulation preferably depends on the force applied.
20 Thus the joint is preferably such that when the head is in contact with skin, a downward force applied to the handle is always delivered to the head, whatever position the head has moved to; and in each position of the head it experiences a resistance force from the joint.

25

Preferably, however, at an extreme position articulation of the head about the handle is terminated. This may be achieved by provision of stop means within the joint.

30 Preferably the head articulates about its rear edge region, where it connects to the joint, preferably about its rear edge itself.

Suitably the head is able to articulate relative to the handle (by which we mean from its unflexed or rest position to its maximally flexed position when in use) through an angle of at least 1° , preferably at least 5° ,
5 and more preferably at least 10° . Yet more preferably the head is able to articulate relative to the handle through an angle of at least 25° , and most preferably at least 40° .

10 Suitably the head is able to articulate relative to the handle through an angle of up to 120° , preferably up to 90° , and more preferably up to 75° . Most preferably the head is able to articulate relative to the handle through an angle of up to 60° .

15 Suitably when the head articulates about the handle the leading edge is able to move through an arc of at least 2mm, preferably at least 3mm, more preferably at least 6mm. Yet more preferably when the head articulates about
20 the handle the leading edge is able to move through an arc of at least at least 10mm, and most preferably at least 15mm.

Preferably when the head articulates about the handle the
25 leading edge is able to move through an arc of up to 50mm, preferably up to 40mm, and most preferably up to 30mm.

Preferably the device has a memory property, such that once the force on the head is reduced or removed it is
30 able to recover its previous or rest position. Thus the device may be of a material which is elastic or elastomeric.

We do not exclude embodiments in which the head is separate from the handle. Preferably, however, the device is unitary. A unitary device may be formed of one material or it may be formed of more than one material, set together in the manufacture but thereafter inseparable unless the device is destroyed or damaged.

Typically the leading edge is a 20-60mm line, preferably 30-50mm.

10

Preferably the device as a whole is curved, preferably being downwardly concave.

Preferably the device is formed from a plastics material, especially a thermoplastics material. Polyolefins are especially suitable, notably polypropylene and polyethylene (HDPE or LDPE). Such materials allow the preferred resistive articulation of the head about the handle, allow for elastic recovery, are readily moulded, and are tough, having little tendency to brittle failure, as might otherwise take place within the joint.

20

Copolymers or polymer blends may be used.

25 The plastics material may contain one or more additives to improve its properties for the task in hand. For example a plasticizer may be added in order to improve its suppleness or flexibility.

30 Preferably the device is a unitary plastics moulding. Suitably the joint is achieved by provision of a web of material between the handle and the head, preferably thinner than both.

Preferably the handle is a substantially rigid part.
Preferably the head is a substantially rigid part.
Preferably, therefore, the articulation of the head about
5 the handle arises substantially wholly because of the
nature of the joint; there is substantially no propensity
for deflection elsewhere.

Preferably the device weighs less than 12g, and more
10 preferably weights less than 8g.

Preferably the handle is of a waisted shape, having a
widened distal region and a widened proximal region
(adjacent the joint), with the waist in between.
15 Preferably the distal region has a depression to aid
holding, most preferably on its upper side. Preferably
the proximal end region of the handle has a depression on
its upper side. In each of these cases the depression
could be replaced by a textured non-slip surface, which
20 could be moulded in.

The handle could be a solid piece but more preferably it
is generally U-shaped, downwardly open.

25 Preferably the joint is formed by a web of the plastics
material, suitably at the base of a notch which is open in
the upwards direction. The notch could be of U-section or
V-section. The walls of the notch may be formed by the
end faces of the handle and the head.

30

Preferably the head is bounded by the joint, the leading
edge, which is preferably wider than the joint, and by
lateral edges between them. Preferably the lateral edges

of the head are convex. Preferably the head has the appearance of a circle or ellipse truncated by the leading edge.

- 5 The junctions between the leading edge of the head and the adjoining edges may be radiused, to reduce the risk of them jaggging against the skin.

10 The device may, in principle, be used to remove any composition from the skin, for example a cleansing or moisturising body pack. However it will be evident from the foregoing that the primary interest is in relation to the removal of a depilatory composition, along with entrained hair.

15

In accordance with a second aspect of the present invention there is provided a method of removing a composition from the skin, in particular a depilatory composition containing hair, by use of a device of the
20 first aspect.

In accordance with a third aspect of the present invention there is provided a method of effecting depilation, comprising the steps of:

25

applying a depilatory composition to the skin;

allowing it to remain on the skin for a pre-determined interval;

30

removing the depilatory composition and depilated hair by moving a device as defined in the first aspect over the skin; and

rinsing the skin.

The depilatory composition described herein may for
5 example be a cream, lotion, gel or foam.

The device could be sold on its own. Preferably, however,
it is sold in a pack with a receptacle of the composition
which is to be applied to the skin. The receptacle may
10 for example be a jar or tube; a conventional aerosol
canister; or a multi- or bi-compartment aerosol product
(in which the composition and a compressed gas are
segregated, inside the canister, the compressed gas
driving out the composition when a valve is operated). In
15 the case of a depilatory composition the latter is a
preferred way of supplying the composition.

A pack of a composition to be applied to the skin and a
device of the first aspect could be a carton with the two
20 components in, or it could be a clear plastics package
encompassing them (blister pack, or shrink sleeve).
Alternatively the device of the first aspect could be
engaged directly with the receptacle which contains the
composition. For example a canister could have a modified
25 cap to which the device is secured.

In accordance with a fourth aspect there is provided a
pack comprising a device as defined above and a depilatory
composition.

30

The invention will now be further described, by way of
example, with reference to the accompanying drawings, in
which:

Fig. 1 shows a first embodiment of device, in perspective view;

5 Fig. 2 shows the device of Fig. 1, in side view;

Fig. 3 shows a second embodiment of a device, in perspective view;

10 Fig. 4 shows a third embodiment of device, in side view;

Fig. 5 is a view from the underside, of the device of Fig. 4; and

15 Fig. 6 shows a device coupled to a canister of a depilatory composition.

Each of the embodiments to be described is intended for use with a depilatory composition.

20

The device of the first embodiment, shown in Figs. 1 and 2 comprises a head 2 and a handle 4, connected together by a joint 6 which acts as a hinge, permitting the head to articulate about the handle on application of a force, and
25 against a resistance force. It will be seen in Fig. 2 that the head and handle terminate in end faces which join together at their lower edges at the joint 6. The end faces in effect define the joint as a V-shaped notch, upwardly open.

30

As can be seen in Fig. 2 the device is generally curved in side view, being concave when considered from the downward direction.

The device is a one-part polyolefin moulding. The head 2 and the handle 4 are both generally rigid, whilst the joint 6 is thinner, and is flexible. Thus the head 2 may
5 articulate or flex relative to the handle 4, the articulation being wholly provided by virtue of the flexibility of the joint 6.

The head 2 has a leading edge region 8, on its opposite
10 side from the joint 6. The leading edge region 8 terminates in a leading edge 10, 44mm long in this embodiment. The leading edge 10 is formed with a radius of 0.75mm. This radius means that although good removal
15 of a material from the skin by a scraping action can be achieved, and substantially weakened hairs might be broken and removed, undegraded hairs could not be cut or broken, nor could skin be. Between the leading edge 10 and the
joint 6 the head has outwardly bowed side edges 12, such that the overall plan view shape of the head is
20 approaching semi-circular. On its upper face the head has a bulbous part 14. This is present for aesthetic reasons and to impart rigidity to the head.

The handle is of solid plastics material, is waisted in
25 shape, having a wide and thick, rounded, distal region 16, a narrowed waist 18, and a proximal region 20 which is wider than the waist. The upper face of the proximal region 20 is moulded with a non-slip textured portion 22. This can be seen in Fig. 1. As can be seen in Fig. 2 this
30 textured portion rises towards the joint 6. The net result is that the textured portion 22 provides a comfortable location for the thumb 24 of a user, and facilitates application of a force during use. Meanwhile

the user's fingers 26 are located on the concave underside of the handle.

In use a depilatory composition (for example a cream, lotion, foam or gel) is applied to the skin, usually by hand, and is left for the required period of time. This is usually five minutes although we favour the use of a depilatory composition which is formulated for removal in three minutes. The device described above is then used to remove the composition, together with depilated hairs. The device is moved rearwardly over the skin, by a drawing action, in the manner of a wet razor. The downward force applied by the user to the handle is transmitted to the head, whose leading edge is in contact with the skin. The head flexes slightly, to the position shown in dotted lines in Fig. 2, as a reaction to the force acting between the head and the leading edge of the skin. If the user applies a higher downward force the head flexes more. In essence the head is self-correcting, against the risk of pressing too hard against the skin. The articulation of the head relative to the handle takes place against the resistance within the joint. If there were no resistance, the head would be floppy on the handle and the device would be of no use.

25

If an extremely high downward force were applied to the head it could conceivably articulate to its limit position, in which the V-shaped notch has closed, the end face of the handle in effect acting as a stop means. However this is not intended in this embodiment and is not characteristic of any expected use.

30

The handle could be held in different positions. For example it is designed to be comfortable for a user also to hold the distal end of the handle between thumb and fingers so that the leading edge is well beyond the tips
5 of the fingers. This may be useful when removing material from areas which are difficult to reach, for example the backs of legs.

In the first embodiment the polyolefin is polypropylene
10 but in other embodiments of similar design polyethylene, for example LDPE or HDPE, may be preferred.

The embodiment shown in Fig. 3 differs from that of Fig. 2 only in the provision of an elastomeric fin 28, at the
15 leading edge. It may be of any elastomeric material and may be set into the product in any typical way, for example by dual shot moulding. Preferably it is fairly firm and/or narrow, so that the provision of the joint still provides benefit.

20

Figs. 4 and 5 show a third embodiment which is also closely related to the first embodiment. Only the significant differences will be described. In other respects the description of the first embodiment applies
25 to the third embodiment.

A first difference is that the handle is not of solid plastics, but is a downwardly concave moulding. That is, in transverse cross-section it is U-shaped. Fig. 5 is a
30 view from underneath the device and this shows walls 30, 32 and a recess 34 between them. This means that the volume of plastics used in the device can be reduced from about 11cm^3 to about 7cm^3 .

A second difference is that the distal end 16 of the device is formed with a recess 36. This is to aid the holding of the device at the distal end, as described in relation to Fig. 1. The outline of this recess can be seen in the underside view of Fig. 5, along with the underside of the textured portion 22.

A third difference is in the joint 6, which is not in the form of a V-shaped notch. The end faces of the handle and the head do not meet, as they did in the first and second embodiments. Instead they are joined together by a short bridge 38. The joint is in effect in the form of a U-shaped notch. This gives good flexibility and, because the location of articulation is more diffuse, a lower risk of stress damage.

The underside of the head, adjacent to the joint 6, is formed with a crescent-shaped part 40 which increases its rigidity.

Fig. 6 shows a device generally in accordance with the three embodiments described above secured to a canister of a depilatory composition. The canister is not a conventional aerosol canister but is a bi-compartment aerosol canister. Between the removable cap 42 and canister body 44 there is entrapped a flexible plastics part 44 which is formed so as to retain a device in accordance with the invention. The whole assembly is enveloped in a plastics film, for example as a blister pack. An advantage of this arrangement is that there is no possibility of rotation of the assembly prior to purchase. In an alternative arrangement in which these

two parts are within one package, but in separate compartments, there would be a risk that the canister would turn within the package, due to its cylindrical shape. If this happened the presentation to the customer
5 at the point of sale would be spoilt.

CLAIMS

1. A device for removing a composition from the skin, the device comprising: a non-shaving head which in use is
5 moved over the skin to effect removal of the composition; a handle; and a joint between the head and the handle, permitting the head to articulate about the handle.
2. A device as claimed in claim 1, wherein there is a
10 resistance force acting against articulation of the head, which resistance force increases as the articulation increases.
3. A device as claimed in claim 1 or 2, wherein the head
15 is able to articulate about the handle through an angle in the range 10 to 40°.
4. A device as claimed in any preceding claim, wherein when a force causing articulation of the head is reduced
20 or removed the head is able to recover its previous or original position.
5. A device as claimed in any preceding claim, the device
25 being unitary.
6. A device as claimed in claim 5, the device being a one-part plastics moulding.
7. A device as claimed in any preceding claim, wherein
30 the handle is substantially rigid, the head is substantially rigid, and the joint is the only source of the articulation.

8. A device as claimed in any preceding claim wherein the joint is formed by a web of plastics material at the base of an upwardly open notch between the handle and the head.

5 9. A method of removing a composition from the skin by use of a device as claimed in any preceding claim.

10. A method of effecting depilation, comprising the steps of:

10

applying a depilatory composition to the skin;

allowing it to remain on the skin for a pre-determined interval;

15

removing the depilatory composition and depilated hair by moving a device as defined in any of claims 1 to 8 over the skin; and

20

rinsing the skin.

11. A pack comprising a device as claimed in any of claims 1 to 8 and a depilatory composition.

25

12. A pack as claimed in claim 11, wherein the depilatory composition is supplied in a bi-compartment aerosol canister.

30

13. A device, method or pack substantially as hereinbefore described with particular reference to the accompanying drawings.

ABSTRACT**Device and method**

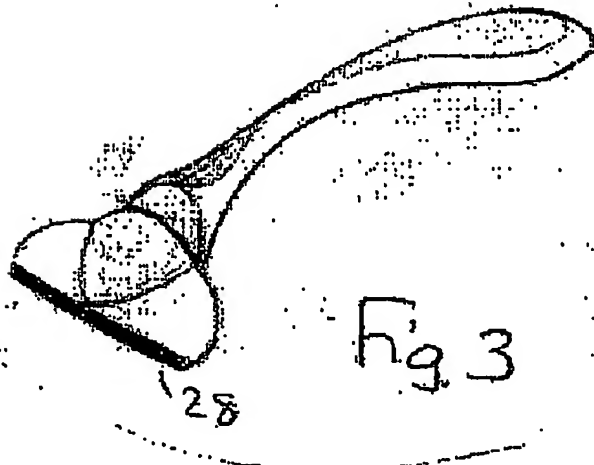
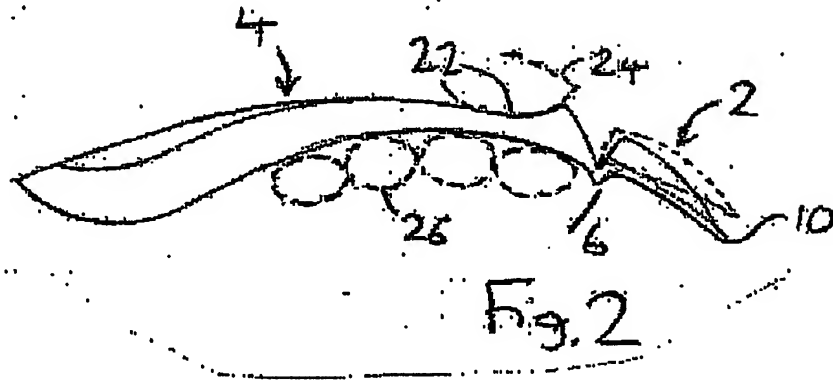
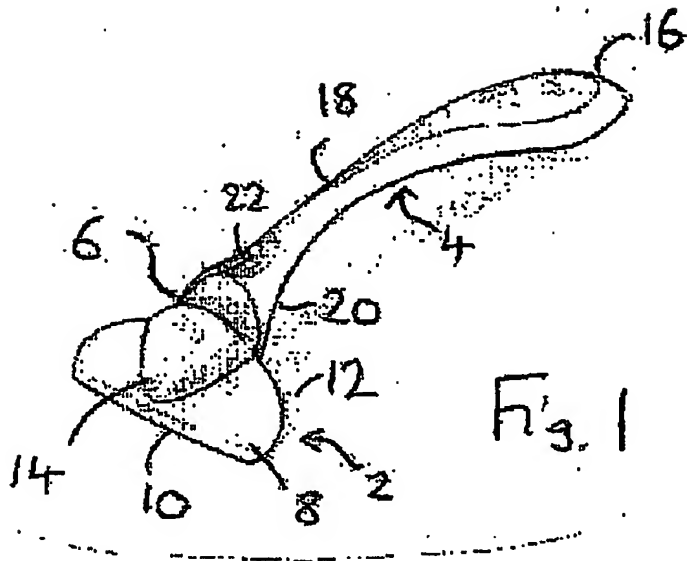
5

A device for removing a depilatory or other composition from the skin comprises: a non-shaving head (2) which in use is moved over the skin to effect removal of the composition; a handle (4); and a joint (6) between the
10 head and the handle, permitting the head to articulate about the handle.

(Fig. 1)

15

20



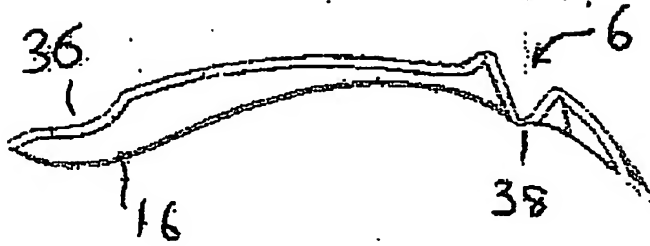


Fig. 4

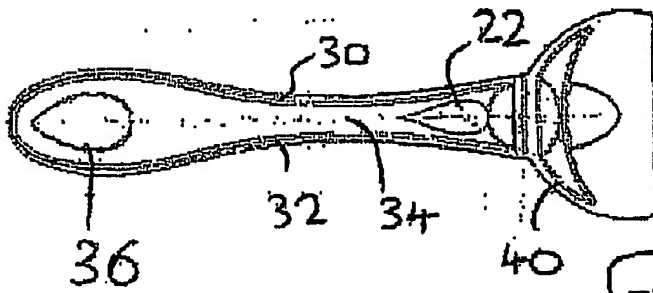


Fig. 5

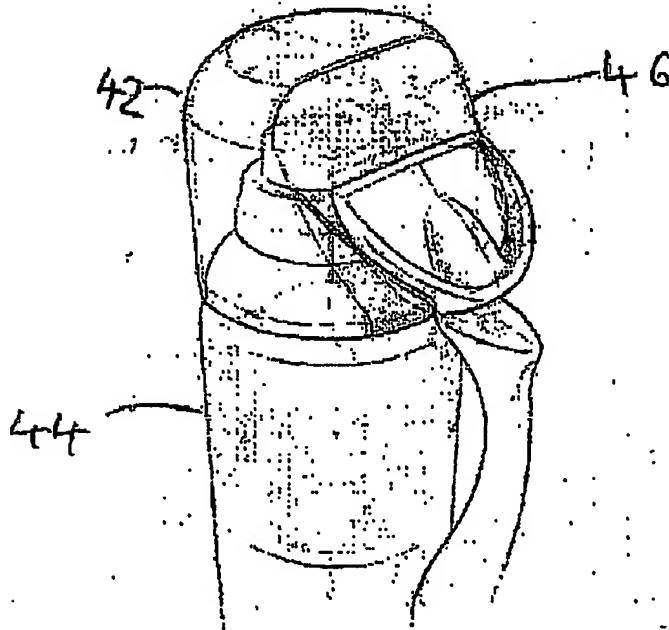


Fig. 6

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